

**U.S. DEPARTMENT OF ENERGY**  
**OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY**  
**NEPA DETERMINATION**



**RECIPIENT:** Pacific Ocean Energy Trust

**STATE:** OR

**PROJECT TITLE :** Network Director for the TEAMER Program

**Notice of Funding Opportunity Number**  
DE-FOA-0002012

**Procurement Instrument Number**  
DE-EE0008895

**NEPA Control Number**  
GFO-0008895-034

**CID Number**  
G08895

**Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:**

**CX, EA, EIS APPENDIX AND NUMBER:**

Description:

**A9 Information gathering, analysis, and dissemination**

Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)

**A11 Technical advice and assistance to organizations**

Technical advice and planning assistance to international, national, state, and local organizations.

**B3.6 Small-scale research and development, laboratory operations, and pilot projects**

Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

**Rationale for determination:**

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the Pacific Ocean Energy Trust (POET) to administer the Testing and Access for Marine Energy Research (TEAMER) program. POET would collaborate with a Technical Board (TB) which would include representatives from DOE, DOE National Laboratories, and National Marine Renewable Energy Centers. The primary objective of TEAMER is to provide marine energy (ME) technology developers access to a network of facilities within the U.S. which provide testing and modeling assistance for ME technologies. Developers would apply for assistance through a competitive process.

DOE previously completed NEPA reviews which apply to all tasks. However, under Subtask 3.3.1, POET would conduct periodic rounds of funding, specifically identifying facilities offering assistance for which developers could apply. Applications would be reviewed and selected by POET and the TB. Prior to releasing funds to support any selected application, each application would be subject to NEPA review. Applications would include scope of work, where work would be completed, and who would be responsible for completing work (including assistance provided by TEAMER facilities).

For this review, POET has identified 13 Technical Support Recipients (TSRs) to receive support through the TEAMER program:

**1. Bluewater Network LLC**

For this project, Bluewater Network LLC would receive technical assistance from Integral Consulting Inc. (Integral). Support activities would include conducting a desktop feasibility assessment for developing a wave energy converter (WEC) array capable of supporting the energy needs of San Nicholas Island, an island off the coast of California. Integral would use available data resources to build a project workflow designed to screen and select favorable deployment sites. The workflow would consider wave resources, bathymetry, areas of exclusion, and additional factors that could impact project deployment.

**2. C-Power**

For this project, C-Power would receive technical assistance from Cardinal Engineering (CE). Support activities would

include investigation and characterization of protection systems for hydrodynamically induced, transient overvoltage events in a utility-scale wave power system (WPS) with a direct drive, permanent magnet generator. CE would identify electrical components that could be damaged due to transient overvoltage events, characterize the conditions that induce transient voltage events, and identify the sensor suite required to signify pre-event indicators.

### 3. Crown Estate Scotland (SEC)

For this project, SEC would receive technical assistance from Sandia National Laboratories (Sandia). Support activities would include development of integrated hydrokinetic and coastal hydrodynamic models of Scotland's Pentland Firth and Orkney Waters (PFOW). Sandia would develop and validate two baseline site models for Scotland's PFOW, perform simulations of two sites under various scenarios, benchmark the study's outputs with other modeling results, and provide a summary report.

### 4. Deep Anchor Solutions Inc. (DAS)

For this project, DAS would receive technical assistance from Stress Engineering Services Inc. (SES). Support activities would include investigating the enhancement of deeply embedded ring anchor (DERA) technology. SES would assess the impact of corrosion and fatigue on DERA through multi-physics analysis, build a finite element model, develop mooring loads for a floating WEC, execute finite element analysis for extreme and fatigue load conditions, perform fatigue analysis using the stress amplitudes from the finite element analysis, and lead the design optimization process.

### 5. Hawaii Ocean Power Solutions (HOPS)

For this project, HOPS would receive technical assistance from the American Bureau of Shipping (ABS). Support activities would include conducting New Technology Qualification of a proposed WEC design. The qualification activities would involve risk assessments and engineering evaluations used to determine if the new WEC system would provide acceptable levels of performance and safety in line with established requirements and current marine industry practice. If appropriate, ABS would issue a letter of maturity for the proposed technology.

### 6. Littoral Power Systems, Inc. (LPS)

For this project, LPS would receive technical assistance from the Pacific Northwest National Laboratory (PNNL). Support activities would include computer modeling to be used to evaluate the feasibility of tidal energy extraction at non-operational gas platforms and the effects of sedimentation and sea ice in Cook Inlet, Alaska. PNNL would develop a tidal hydrodynamic model with high-resolution around the platforms, conduct model simulations to characterize tidal resources in the area, generate depth-average tidal current speed, power density, and turbulence kinetic energy and intensity, analyze model results and identify the best locations to simulate power extraction by turbine arrays, and assess the potential risk of drifting sea ice on turbine array and effect on potential sediment erosion.

### 7. Orbital Marine Power (OMP)

For this project, OMP would receive technical assistance from PNNL and Florida Atlantic University (FAU). Support activities would include developing a site identification framework and environmental compliance for floating ocean current turbines in U.S. waters. PNNL and FAU would review available OMP data and examine necessary compliance with authorizations to deploy tidal technology, driven by the technology characteristics.

### 8. ORPC

For this project, ORPC would receive technical assistance from the University of Washington (UW). Support activities would include testing of a magnetically geared electrical generator using a dynamometer system at the Applied Physics Laboratory at UW. UW would prepare the testbed for integration with ORPC's generator, set up the system, operate the testbed during testing, and curate system data for hand off.

### 9. University of Alaska Fairbanks (UAF)

For this project, UAF would receive technical assistance from Sandia and Integral. Support activities would include training researchers at UAF on the use of two numerical models capable of representing wave and current energy converters in their respective environments.

### 10. University of Tennessee, Knoxville (UTK)

For this project, UTK would receive technical assistance from Oak Ridge National Laboratory (ORNL). Support activities would include creating a numerical model for morphing Wells turbine blades. ORNL would validate the model in several stages against existing experimental literature for rigid turbine blades, conduct a performance analysis to assess the effects of modifications on turbine performance metrics, examine flow fields to determine underlying changes to flow structures that result in observed differences, and compile and distribute their findings.

### 11. University of Washington (UW)

For this project, UW would receive technical assistance from PNNL. Support activities would include using a validated regional ocean model to simulate a high-confinement array in Knik Arm (Cook Inlet, Alaska). PNNL would post-process model output to provide updated inflow and water level information to UW, as well as analyze far-field environmental changes from array operation.

#### 12. Verdant Power (Verdant)

For this project, Verdant would receive technical assistance from PNNL. Support activities would include refining the understanding of tidal energy resources in Long Island Sound, NY (LIS). PNNL would develop a high-resolution tidal hydrodynamic model of LIS, validate the model, conduct year-long simulations for the theoretical resource, conduct tidal energy extraction simulations, produce heatmaps of tidal current speed and power density, probability of velocity exceedance, and Annual Energy Production (AEP) based on year-long simulations, provide model output data to Verdant, and support the production and publication of the Post Access Report.

#### 13. Wave Water Works, LLC (WWW)

For this project, WWW would receive technical assistance from FAU. Support activities would include numerical modeling, analysis, and optimization of an Oscillo-Drive WEC. FAU would find optimal WEC parameters per sea state by developing a numerical model through WEC-Sim and perform mesh refinement, sensitivity analysis, and a parameter correlation study.

All TSRs would receive support from one or more facilities within the TEAMER facility network. Prior to admitting a new facility into the network, the facility and its capabilities would be reviewed by POET and the TB. All selections of additional facilities, facility capabilities (i.e., type of support offered,) activities, and TSRs would be subject to additional NEPA review.

DOE has considered the scale, duration, and nature of proposed activities to determine potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate impacts on these resources which would be considered significant or require DOE to consult with other agencies or stakeholders.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

### NEPA PROVISION

DOE has made a conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

All tasks are approved; however, selection of additional facilities, new activities, and Technical Support Recipients (TSRs) are subject to additional NEPA review.

The following TSRs are approved to receive technical support for activities proposed in the applications that were part of this review:

1. Bluewater Network LLC
2. C-Power
3. Crown Estate Scotland
4. Deep Anchor Solutions Inc.
5. Hawaii Ocean Power Solutions
6. Littoral Power Systems, Inc.
7. Orbital Marine Power
8. ORPC
9. University of Alaska Fairbanks
10. University of Tennessee, Knoxville
11. University of Washington
12. Verdant Power
13. Wave Water Works, LLC

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

Selections of additional facilities, new activities, and TSRs. Such additions are subject to additional NEPA review. All technical support activities must be completed by pre-approved facilities and must be the type of work which a signed NEPA Determination applies to.

Notes:

Water Power Technologies Office (WPTO)  
NEPA review completed by Melissa Parker, 11/25/24

## FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

## SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: \_\_\_\_\_



NEPA Compliance Officer

Date: 11/25/2024

## FIELD OFFICE MANAGER DETERMINATION

- ☒ Field Office Manager review not required  
☐ Field Office Manager review required

## BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: \_\_\_\_\_

Field Office Manager

Date: \_\_\_\_\_